REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 1-12 remain in the application, and as amended herein, are submitted for the Examiner's reconsideration.

Claims 1 and 12 have been amended to place the application in condition for allowance. It is therefore submitted that the present Amendment should be entered.

In the Office Action, the Examiner rejected claims 1-12 under 35 U.S.C. § 103(a) as being unpatentable over Liu (U.S. Patent No. 6,326,300) in view of Jang (U.S. Patent No. 6,265,319). It is submitted, however, that the claims are patentably distinguishable over the references.

The Liu patent is directed to a dual damascene process for forming patterned conductor layers that are separated by patterned dielectric layers. Liu shows, in Figs. 1-6, a process in which a first dielectric layer and an etch stop layer are deposited atop a substrate, a patterned resist layer is formed and then used to mask the etching of portions of the etch stop layer, and then ion implanted regions are formed in the now exposed areas of the first dielectric layer. The first resist layer is removed, a second dielectric layer is deposited atop the etch stop layer as well as in the openings in the etch stop layer, and a further patterned resist layer is formed and used to mask an ion implant step into the second dielectric layer. The ion implants increase the etch rate of the implanted regions in the first and second dielectric layers. Then, a trench is etched in the ion implanted regions of second dielectric layer, and a via is etched in the ion implanted regions of the first dielectric layer. (See col. 7, lines 26-47; col. 8, lines 15-36; col. 9, lines 7-21; col. 10, lines 38-62; and col. 11, lines 8-44). As acknowledged by the Examiner Liu does not suggest

that the etch stop layer includes a polymer material having a dielectric constant of less than about 3.0.

The Jang patent relates to a dual damascene method. A first dielectric layer is deposited over a substrate, an intermediate layer having a low dielectric constant is deposited over the first dielectric layer, and a second dielectric layer is formed over the intermediate layer. The first dielectric layer, the intermediate layer and the second dielectric layer are then patterned and etched. (See Figs. 1-3, 6-7 and 10-11; col. 4, lines 57-64; col. 5, lines 62 to col. 6, line 12; col. 9, lines 15-62; and col. 10, line 50 to col. 11, line 3).

Neither Liu nor Jang suggests forming vias by etching that erodes portions of the etch stop layer such that the etch stop layer forms part of the sidewalls of the trenches. Liu shows, in Figs. 6 and 8, that after the first and second dielectric layers are etched, the etch stop layer remains intact and does not form part of the sidewalls of the trench formed in the second dielectric layer. Similarly, Jang shows, in Figs. 3-4, 7-8 and 11-12, that the etch of the first dielectric layer leaves the intermediate layer intact so that the intermediate layer does not form part of the sidewall of the second dielectric layer. Neither Liu's etch stop layer nor Jang's intermediate low dielectric constant dielectric layer contributes to the dielectric strength of the second dielectric layer, and the dielectric strength of the second dielectric layer is not improved by either Liu's etch stop layer or Jang's intermediate layer.

Claim 1 has been amended to more clearly show these differences. Support for these changes are formed in Figs. 5-6 and on page 9, lines 5-13 of the specification.

Neither Liu nor Jang suggests:

> forming vias in the interlevel dielectric layer by etching through the trenches using the

> etch stop layer to self-align the trenches to the vias and expose the conductive regions on the first layer, said etching eroding portions of the etch stop layer such that the etch stop layer forms part of the sidewalls of the trenches, thereby improving dielectric strength of the interlevel dielectric layer

as called for in claim 1.

It follows that neither Liu nor Jang, whether taken alone or in combination, suggests the method defined in claim 1, and claim 1 is patentably distinct and unobvious over the references.

Claims 2-12 depend from claim 1 and further define and limit the invention set out in the independent claims. It follows that each of claims 2-12 likewise defines a combination that is patentably distinguishable over the references.

Further, Liu describes an etch stop layer having a thickness from about 1,000 Å to about 2,000 Å, namely from about 100 nm to about 200 nm (see col. 7, lines 42-44), and Jang describes that the intermediate layer is formed to a thickness of about 1,000 Å, namely about 100 nm. Neither reference suggests an etch stop layer having a thickness greater than 200 nm and at most about 250 nm, and neither reference is concerned with the advantages of a thicker etch stop layer.

Accordingly, the withdrawal of the rejection of claims 1-12 under 35 U.S.C. § 103 is respectfully requested.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which the Examiner might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: December 8, 2003

Respectfully submitted,

By _____

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